

## Synthesis and Study the Antibacterial Activities of Some Indole Derivatives

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**Background & Objectives:** Natural products are a rich source of new medicinal leads and, therefore, preparation of natural product-based libraries of compounds is an important area of research in modern drug discovery. We have recently initiated a research program aimed at structural simplification of natural products, specifically by utilizing multicomponent synthetic processes. The Hetero-Bis-Indoles are structural units of many natural and biologically interesting compounds, which possess various pharmacological activities. The indole derivatives serve as a scaffold in a number of antibacterial, antiviral, and protein kinase inhibitors.

**Methods:** In this view and in line with our interest in the synthesis of indole derivatives, we reported an efficient one-pot synthesis of novel Hetero-Bis-Indoles (Scheme 1) and then these products were evaluated in vitro for their antibacterial activities. Hetero-Bis-Indole synthesized compounds were screened for antimicrobial activity.

**Results:** The microorganisms used in this study were *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 85327, (Gram-negative bacteria), *Bacillus subtilis* ATCC465, and *Staphylococcus aureus* ATCC 25923 (Gram-positive bacteria).

**Conclusion:** The minimum inhibitory concentration (MIC) of the synthesized compounds determined by microdilution methods. As can be seen from , good antibacterial activity was observed for most of the compounds against all species of Gram positive and Gramnegative bacteria used in the study.

**Keywords:** Indole; Antibacterial Activities; Synthesis